Contents

In May 2014 the Munich High-end Audio show, CMA800i is officially launched to international market. Since design stage, CMA800i is set as an integrated DAC, Headphone Amp and Pre-amplifier questing for most Hi-end sound quality.

CMA800i headphone amplifier section follows Questyle flagship headphone amp CMA800R current mode amplification patent design, most components used are same. Ultra low distortion as to 0.00026%, ultra wide bandwidth up to 850kHz (+0, -3dB), working in pure Class A status under Super-current, all these features enables CMA800i amplification be most outstanding among all the all-in-one models.

CMA800i DAC section, PCM version it adopts USB Asynchronous transmission 3X Clock structure design, support 192kHz/24bit both USB and SPDIF input/SPDIF output, more important is it support True DSD format digital to analog converting. Different from current DoP (DSD over PCM) format, CMA800i drive program will send DSD source code directly to DAC section for digital to analog converting, its hardware is specially designed with DSD channel to process DSD signal in its original format ,strictly comply with standard SACD format. Same as CMA800i, CMA800i adopts Wolfson WM8741 DAC chipset with 4 levels of digital filters and power regulation. In PCM version it's designed with IIR(MP) digital filters to eliminates pre-ring, while in True DSD version all digital filters are invalid.

Pre-Amplifier output is one more specific feature for CMA800i. Many brands, when they design a all-in-one model, they use the headphone amplifier circuit loop to support pre-amplifier function in the meanwhile, on the sake of cost. But CMA800i, only care how to achieve best sound performance, is designed with totally independent pre-amplifier, even the power supplier supporting pre-amplifier circuit is total

independent located. Volume control adopts a ALPS27 potentiometer working in pure analog format, supporting remote control, as well more suit for supporting active speakers.

A good sound performance require Hi-end components to support. CMA800i is assembled with suitable Hi-end components like DALE military resistors, WIMA capacitors, Nichicon FG capacitors, customized Plitron Toroidal transformer, Neutrik connectors...etc. Aluminum chassis is specially CNC tooled into "mutual-bit" structure, 10mm thickness cover, reduce the CMA800i natural resonance to lowest level. Even the feet is pure aluminum material, tooled by CNC machine, it can be switched to 3-feet triangle structure or 4-feet quad structure as per user's favorite.

Check List

CMA800i	1pc
Power Cord	1pc
CD-ROM	1pc
Remote Control	1pc
CMA800i User Manual	1pc
Test Report	1pc
User Manual of Remote Control	1pc
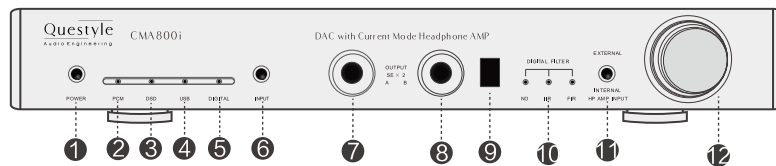
① Standby Button.

② PCM mode indicator.

③ DSD mode indicator.

④ USB input indicator.

⑤ SPDIF input indicator.

⑥ USB/SPDIF input switch.

⑦ 6.35mm Jack plug A.

⑧ 6.35mm Jack plug B.

⑨ Remote Control Sensor.

⑩ Digital filters. In PCM mode, digital filters are switchable by remote control. In DSD mode, digital filter says "NO"

⑪ Internal &External switch. When the switch bar is moved to "External", CMA800i is used a pure headphone amplifier; when it's moved to "Internal", CMA800i internal DAC works and becomes an all-in-one model.

⑫ Volume control
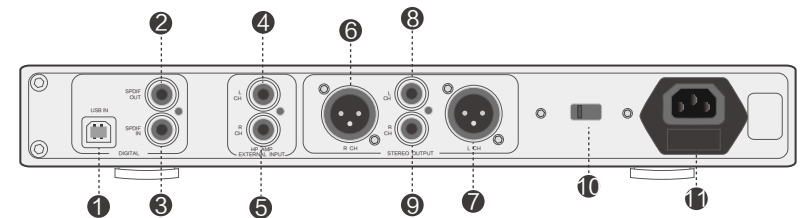
① USB input (type B)

② SPDIF output

③ SPDIF input

④ Left channel RCA input in "External" mode

⑤ Right channel RCA input in "External" mode

⑥ Pre-amp XLR output for Right channel

⑦ Pre-amp XLR output for Left channel

⑧ Pre-amp RCA output for Left channel

⑨ Pre-amp RCA output for Right channel

⑩ 230V/115V voltage switch button

⑪ AC power supply

Current Mode Amplification Technology

(Global PCT No.: PCT/CN2014/075775)

Current Mode Amplification, means the amplification is processed in Current version, instead of Voltage version.

Current Mode Amplification, same as Voltage mode, also take transistors as amplification components. But the amplification circuit loop is totally different from that in voltage mode, in the whole closed-loop all the capacitors in between those transistors which affects speed and bandwidth are working under ultra-low impedance, so it can easily achieve large bandwidth and ultra low distortion.

Low distortion and large bandwidth is what all amplifiers want to achieve. Only with ultra large bandwidth and high speed processing can an amplifier wonderfully process sudden pulse wave signal, and achieve real playback of music signal speed and transparency.

Traditional Voltage mode amplifiers always cause a Transient Intermodulation Distortion (TIMD), which brings a harsh "metallic sound", badly destroyed the sound.To eliminate TIMD, designers usually adopts feedback circuit loop (low feedback, partial feedback or negative feedback) in hardware but these don't totally settle the problem, and cost is very high.

While Questyle gives up the traditional voltage mode format, designed with a "Current Mode" amplification. When the components is working in Current mode, amplifier Slew Rate (SR) achieves a linear increase as input signal amplitude increases, it is in proportion to input signal amplitude. When it's input with large amplitude signal, Current Mode amplifier SR is much larger than traditional Voltage mode devices, it can totally eliminate TIMD and ensures large amplitude signal and low distortion real playback.

True DSD（Direct Stream Digital）Technology

(China Intellectual Property Office Patent No. 201520211945.X)

Unlike other DACs that claim DSD support, yet in actuality provide DoP (DSD over PCM), the Questyle Audio CMA800i accepts the DSD bit-stream directly from your computer, bypassing your computer's audio processing and digital volume control as well as the Questyle Audio CMA800i's digital filters, to provide True DSD, the way it was meant to be heard, without requiring expensive difficult to install proprietary connectors, or as is the case with DoP breaking up the bit-stream into 16bit packets and compressing them into a PCM data-stream and then uncompressing them at the other end, buffering them, then reassembling the bit-stream so that it may be sent to the DAC as DSD, all of which requires an extreme amount of processing at both the computer end and the DAC end to perform in real time
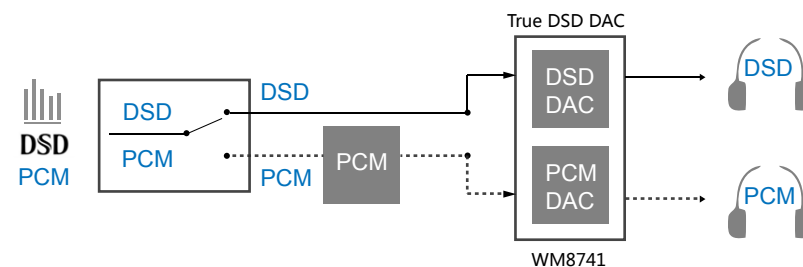
PCM Version Digital Filters

(China Intellectual Property Office Patent No.201520212711.5)

Generated signals from piano, percussion and guitar contain a large amount pulse wave. Studies of the sound psychology indicate that our ears are very sensitive to the pre-ring of impulse wave. It makes music incoherent and unnatural. The pre-ring, brought by FIR (finite impulse response) digital filters used in traditional digital to analog conversion, can be tested and heard very easily. The Questyle Audio CMA800i has the most advanced IIR digital filter, which completely eliminates the pre-ring from the impulse wave and brings the most natural sound. dCS is an example of a company using IIR digital filter technology.

Different digital filters have different impulse responses and group delay, creating different subjective listening experiences. On the front panel of CMA800i, there is a DFR button providing 5 different digital filters for user to choose. Among the five digital filters, the pulse responses of IIR and FIR are totally different. Different FIR or IIR digital filters have different frequency responses. The digital filters are switchable based on user's favorite.
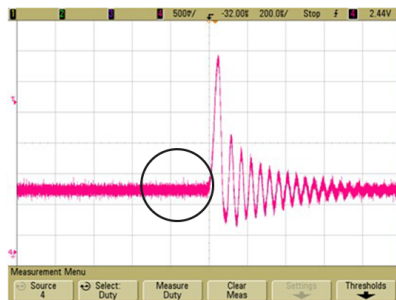
CMA800i IIR digital filter pulse response
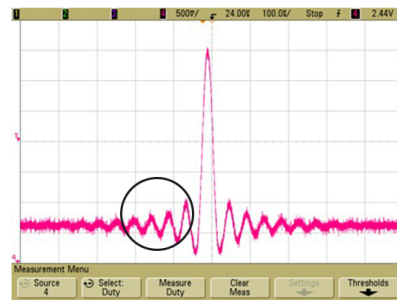
CMA800i FIR digital filter pulse response

Vibrating objects in nature produce a sound wave which has similar features to the IIR digital filter. There is no pre-ring before the vibration and the vibration amplitude decreases gradually after the vibration.

When the sample rate is as low as in 44.1k or 48k, the 5 digital filter options of the Questyle Audio CMA800i will be:
- IIR Apodisting
- IIR soft-knee
- IIR Half-band
- FIR Apodisting
- FIR Half-band

When the sample rate is as high as in 88.2k, 96k or 192kHz, the 5 digital filter options of the Questyle Audio CMA800i will be:
- IIR Apodisting
- IIR soft-knee
- FIR soft-knee
- FIR Apodisting
- FIR Brickwall

The Questyle Audio CMA800i will divide the user's configuration of digital filters into high and low groups and memorize the sample rate.

PC System Requirement

(If you don't use the USB input function of CMA800i, you won't need the following settings)

1) Operating System
The Questyle Audio CMA800i driver and hardwares support Win XP, Vista, Win 7 32Bit/64Bit, Win 8 of 32Bit/64Bit operating systems. For Apple products, later versions of the 10.5.7 Mac OS are supported, no special driver software need to be installed.

2) Player Software
The Questyle Audio CMA800i doesn't require special player software. Any executable player software (including video program) on a PC can send music data to CMA800i for decoding. For Windows system, we recommend JRiver Media Center to experience the full benefits of True DSD.

3) File Type
Music file format playing is the province of the player software. As long as the player software supports the playing of stereo music files, CMA800i can decode it. For JRiver Media Center users, it can perfectly support DSD, FLAC, WAV, and MP3 files.

4) The dedicated driver of CMA800i
The Questyle Audio CMA800i can support Microsoft operating systems Win XP, Vista, Win7 32bit/64bit, Win8 32bit/64bit. USB3.0 required for support the output of 24bit /192K USB Audio data.

5) PC Configuration Requirements
Win XP (SP2 or SP3), Vista, Win7 32bit/ 64bit or Mac OS 10.5.7 or later operating system. At least one USB port. A quality USB2.0 high-speed cable of type A plug to type B plug. We suggest using a high-quality USB cable to ensure the stability and reliability of data transmission and guarantee the best performance from the Questyle Audio CMA800i.

6) Other Requirement
Communication between CMA800i and PC is real-time and therefore requires some available resources from the PC hardware and software platforms during playback. Insufficient resources (available memory or processing) will cause instability, as well as abnormal status from the CMA800i. In such cases, try running dpclat.exe (http://www.thesycon.de/deu/latency_check.shtml) to check whether the Ethernet, Wireless LAN or other equipments have affected the working of CMA800i.

Install Driver Program under Windows OS

Driver installation is required for the Questyle Audio CMA800i to be recognized by a PC. In this example we will use Win7 32 bit operating system to demonstrate the installation process.
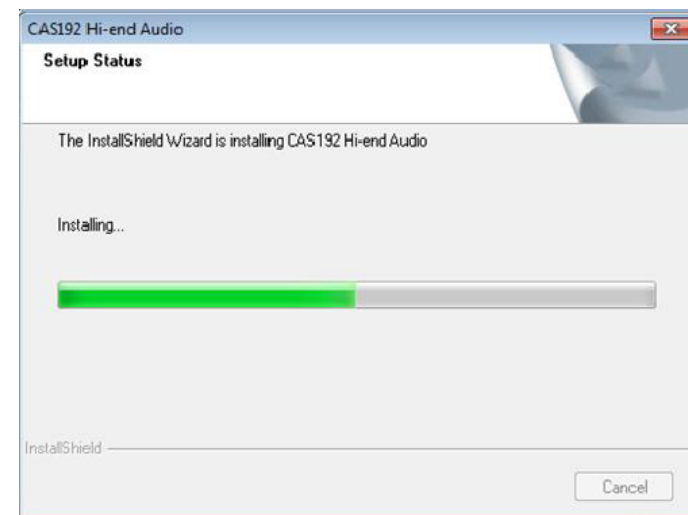
1) Power on the Questyle Audio CMA800i

2) Plug the USB cable into the Questyle Audio CMA800i and into an available USB port on the PC, connecting PC and the Questyle Audio CMA800i.

3) Open the DSD-1.05-(CR) folder on the included CD and click " Setup.exe "to access to installation interface
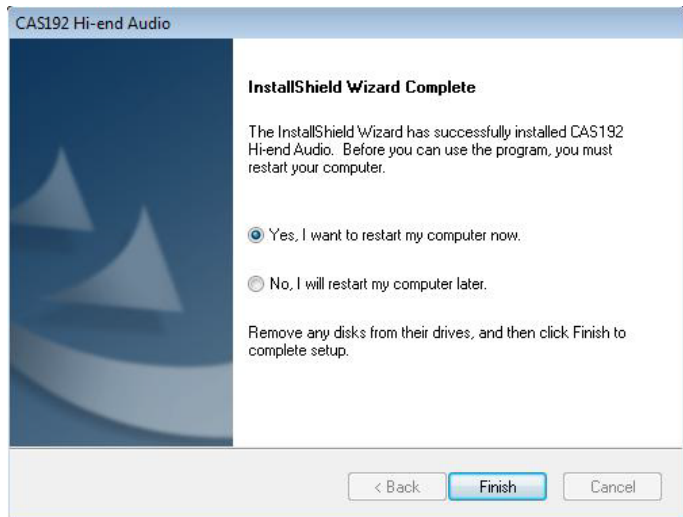
4) Here are tips on the installation:
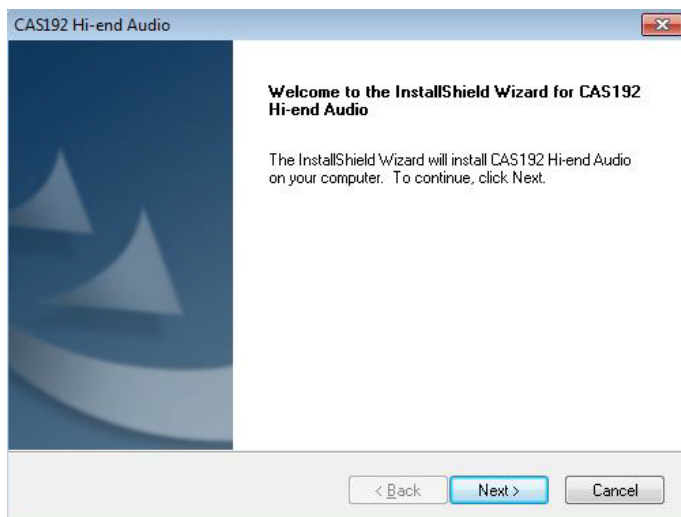
Click "Next".
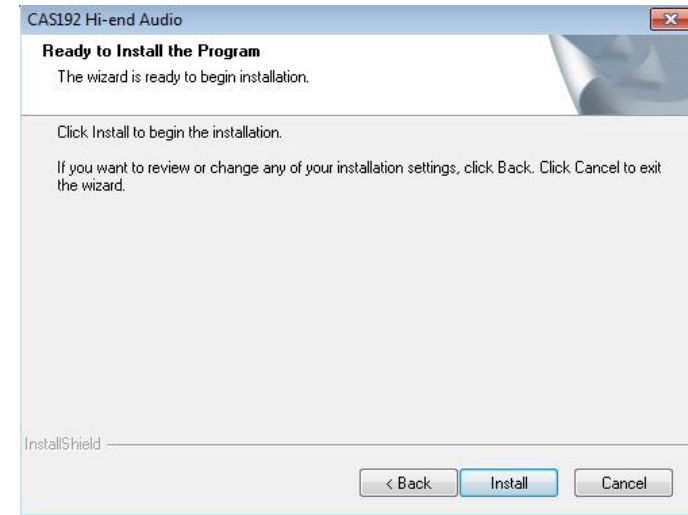
Click "Install".

5) Click "Finish" and restart the PC.

6) Installation on Win XP, Vista OS is the same. No more explanation here

Core Audio Stream Technology

Core audio stream technology is generally used by high-fi audio workstations. It incorporates ASIO, KS and WASAPI, all of which are supported perfectly by the Questyle Audio CMA800i.

According to PC general audio processing procedures, all sound from applications and systems is processed by SRC, going through the lengthy system of processing and hardware layer transmission, and then is output to the external device. The output data is totally different after all those procedures. To output the pure, original and "bit-perfect" data, we must open a high-speed and dedicated channel for the audio device, that is the core audio stream technology.

The Questyle Audio CMA800i supports ASIO and KS on Win 7, Vista, Win XP systems, and supports WASAPI audio output on Win7 32Bit/64Bit, Win8 32Bit/64Bit operating system. For example, when you enable WASAPI + Exclusive Mode between the Questyle Audio CMA800i and player software (like Foobar2000), you can't control the volume through system controller, the sound from the system and other applications (such as Email Alerts) will not be heard through the Questyle Audio CMA800i, because the system has opened the core audio stream channel for the Questyle Audio CMA800i and the audio data is sent directly get to the DAC of the Questyle Audio CMA800i with high-speed.

If you don't set the output to the core audio stream, you will find the sample rate shown on the Questyle Audio CMA800i is different from that of playing the original music, and it is locked at 48K or 44.1K. When you finish the following settings, you will find that the shown sample rate is the same as that of the original music playing, which is telling you that the PC is putting out "bit-perfect" data now.

Setup Core Audio Stream on JRiver Media Center

Let's take Win 8 32bit operating system as example, to see how to setup JRiver Media Center.

1.Download and install
1)Click the website http://www.jriver.com/download.html , click "Windows Download" to download the JRiver Media Center 19.
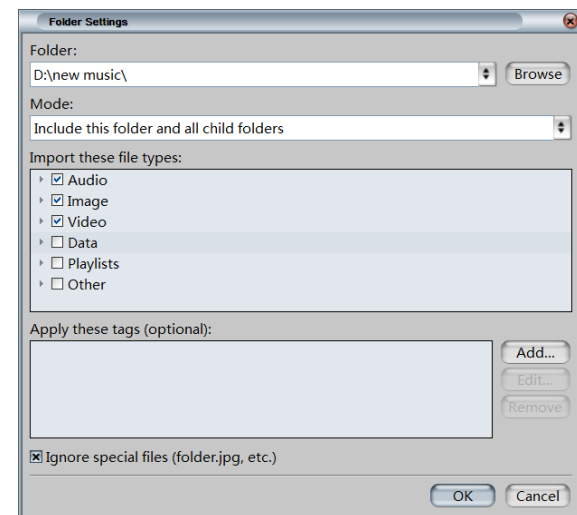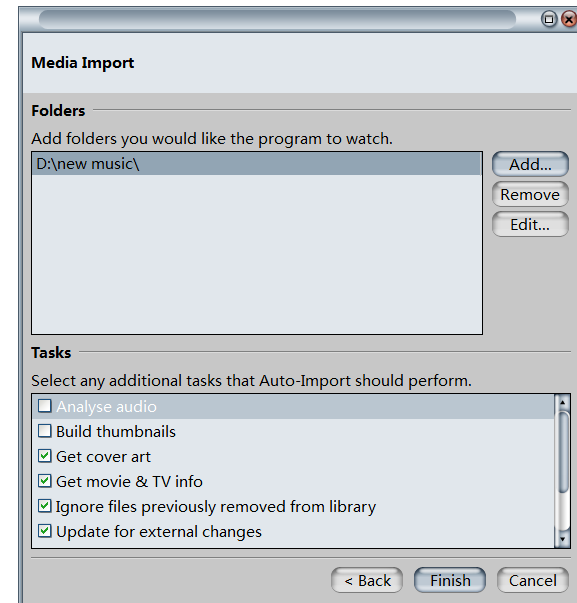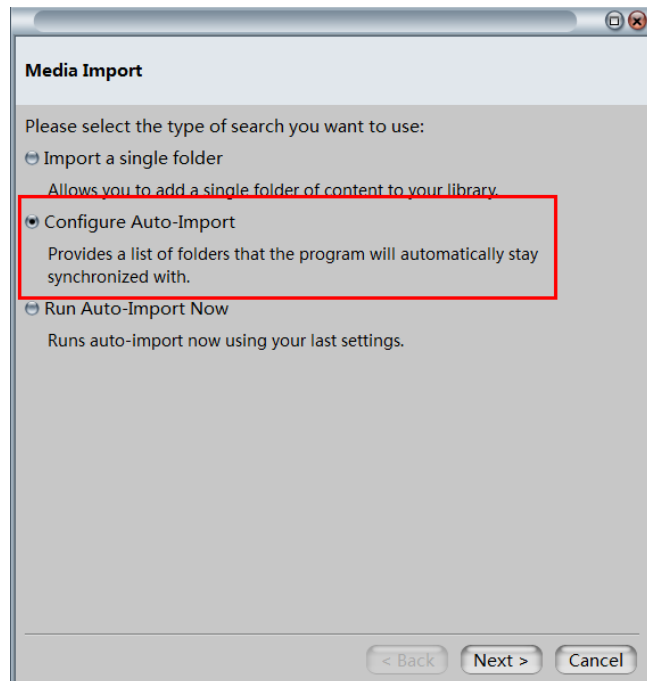2)Install JRiver Media Center 19.

2.Import music
1)Open JRiver Media Center, find the "import..." item from "Tool" option, click it, choose "Configure Auto-Import". Then click "Next" .
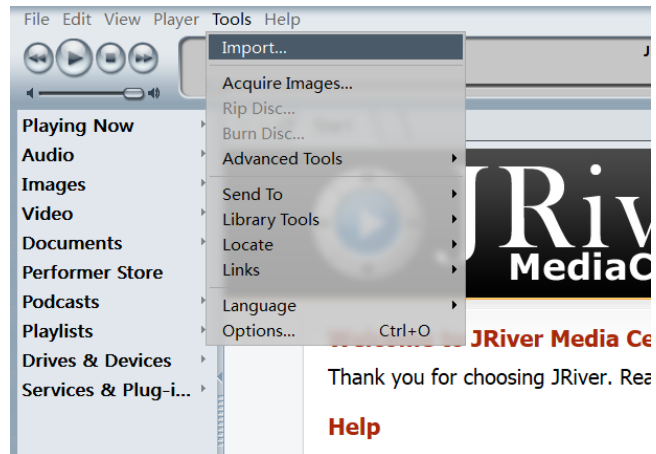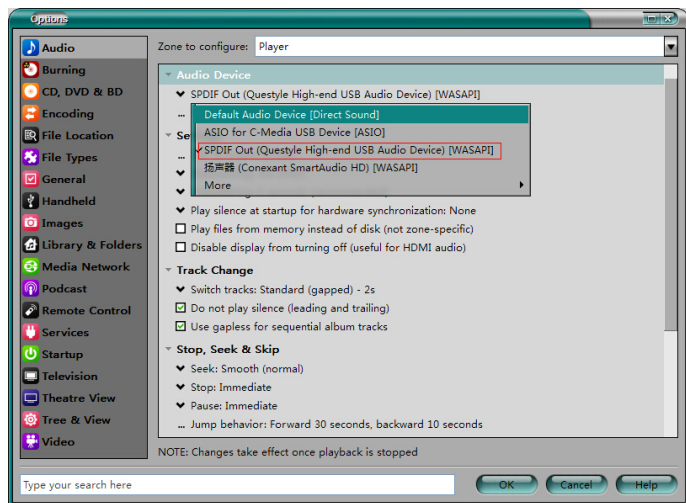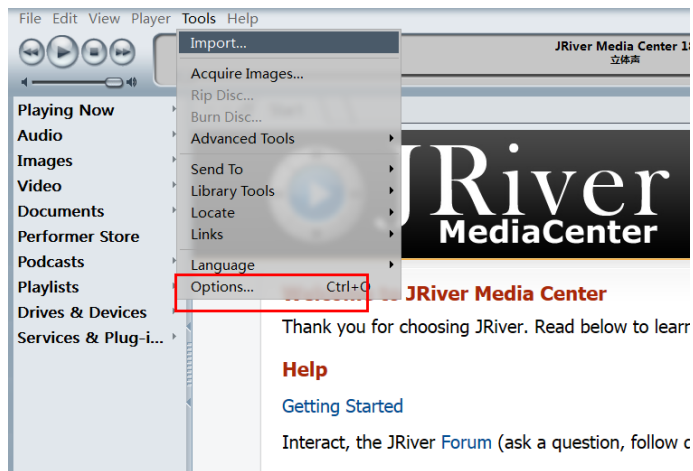
2) Click "Add...", then next screen click "Browse", find the file where the music stays, then click "OK" to complete it.
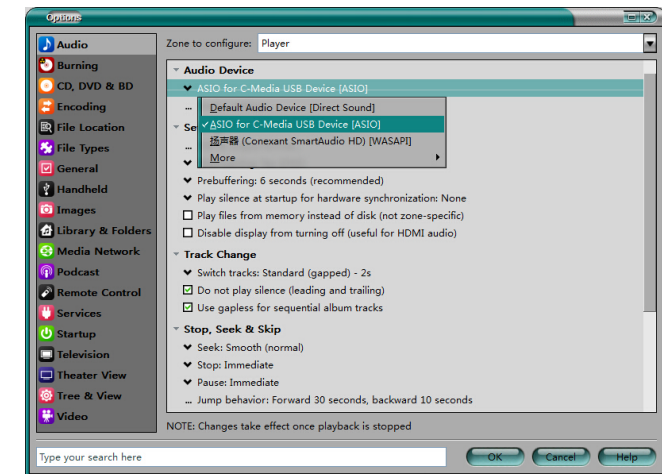
3. JRiver output setup

1) Under "Tool" option there is an "Option" menu, click it to enter sub menu.

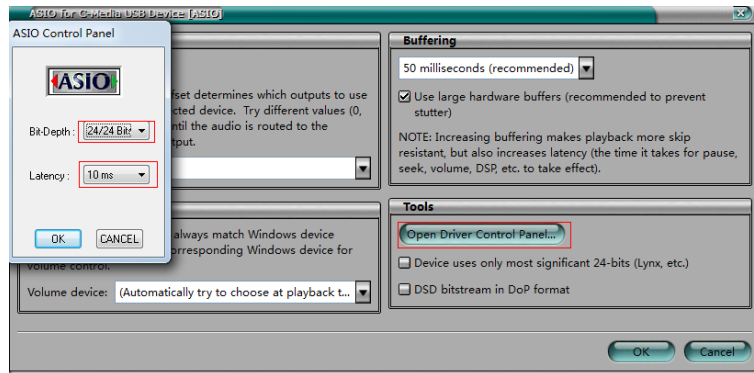3）With above setting, now CMA800i can play the music files from PC (exclude DSD files);

1) Open JRiver Media Center, click "Tool"--"Option", entry the sub menu.

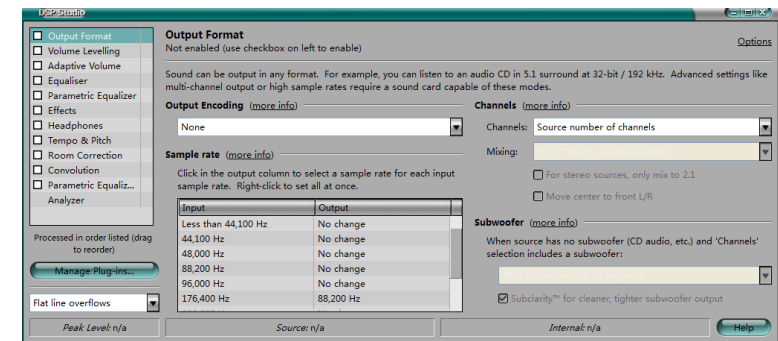2) In "Audio" --"Audio Device", choose "ASIO for C-Media USB Device [ASIO]"

3) Click "Device settings" menu to find ASIO setting sub menu, click "Open Driver Control Panel", bit-depth choose "24/24 bits", Latency "10ms", click "OK".
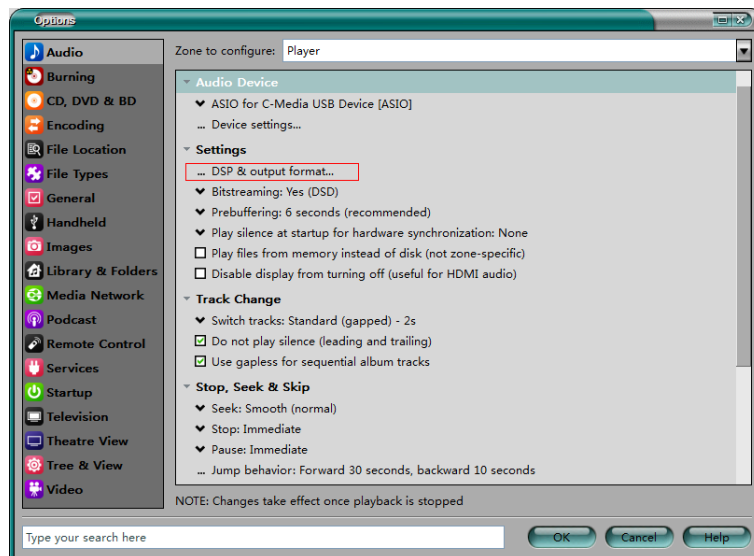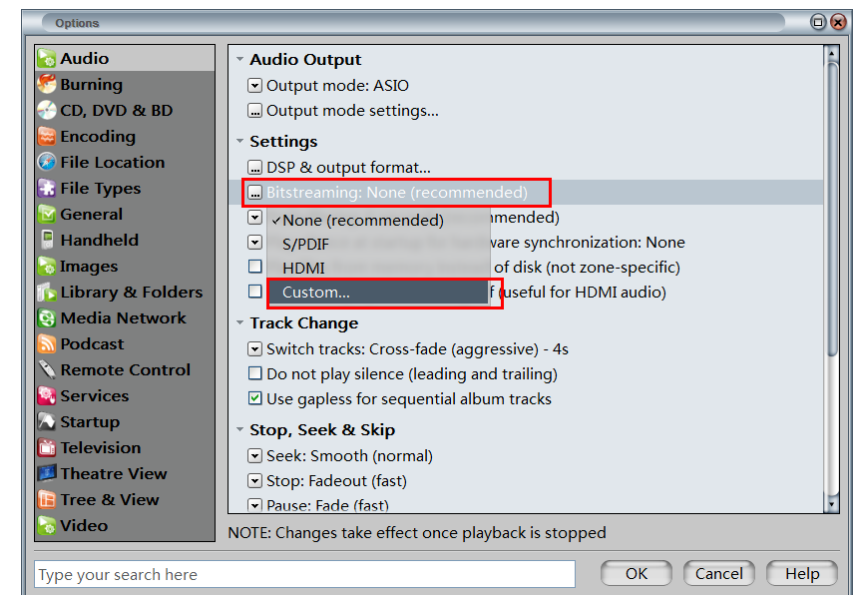
4) In "setting" menu, click "DSP & Output format"
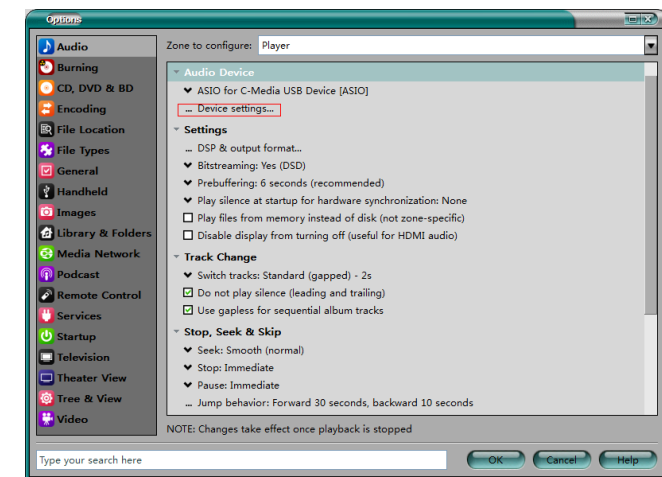
5) Remove all the selected options, then close it.

6) In "Bitstreaming: None (recommended)" menu, choose "Custom.."

7) Click "DSD", then click "OK".

Bitstreaming Formats

☐ Dolby Digital (AC3)

☐ Dolby Digital Plus (E-AC3)
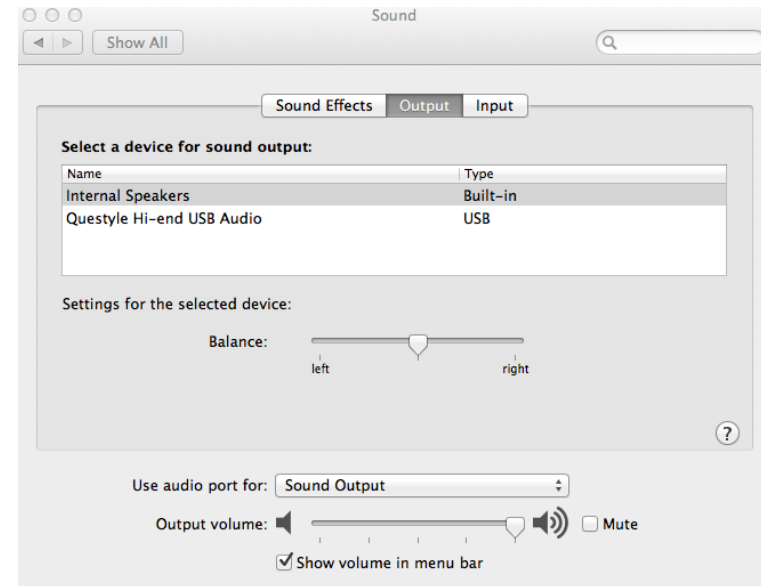
☐ Dolby TrueHD

☐ DTS

☐ DTS-HD

☑ DSD

OK   Cancel
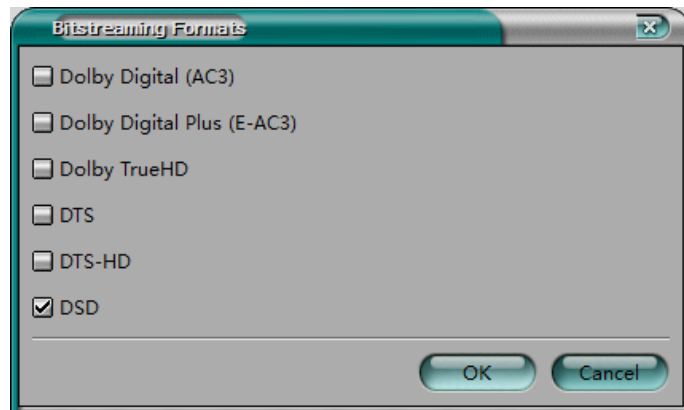
8) With above setting, CMA800i can now both plays DSD and PCM (APE, WAV, FLAC, etc) files from PC;

Installation in MAC OS

For Apple MAC Operation System developed later than OS 10.5.7 ,they are compatible with USB 2.0 High-Speed firmware, so it doesn't need to install the Questyle Audio CMA800i driver program. The Questyle Audio CMA800i works with standard USB Asynchronous transmission.

When PC is USB linked to the Questyle Audio CMA800i, user needs to set sound output as "Questyle Hi-end USB Audio".

Sound

Show All

Sound Effects | Output | Input

Select a device for sound output:

Name	Type
Internal Speakers	Built-in
Questyle Hi-end USB Audio	USB

Settings for the selected device:

Balance: left   right

Use audio port for: Sound Output

Output volume: ☐ Mute

☑ Show volume in menu bar

Specification

Headphone Amp section (External Format)	
Gain	11.8dB (3.9times)
Max Output Power（Po）	180mW（7.5Vrms）@300Ω；1W@32Ω
THD+N	0.00026%@1kHz，Po=100mW，300Ω
	0.00050%@1kHz，Po=50mW，32Ω
SNR	118 dB
Frequency	DC-200kHz(+0，-0.5 dB)；DC-850kHz(+0，-3 dB)
Sensitivity	2.2Vrms
Input	Internal DAC output, or External RCA input,switchable
Output	Dual 6.35mm Standard Stereo Jacks
DAC and Pre-Amp section	
Input	SPDIF input and output, USB Type B input
Signal	SPDIF input and output: Standard PCM 44.1-192K/16-24bit
	USB: PCM 44.1-192K/16-24bit and DSD Source Code following standard SACD format
PC OS to match USB input	Win XP,Vista,Win7,Win8 and MAC OS
Digital Filter	PCM Mode:Switchable IIR(MP) and FIR (LP)
	Ture DSD Mode: No filter
USB supported Kernal stream	WASAPI，ASIO，KS
Analog Output	Balanced (XLR) and unbalanced (RCA)
Nax output amplitude	XLR：8.6Vrms；RCA：4.3Vrms
THD+N	< 0.005% for both XLR and RCA
SNR	>107dB for both XLR and RCA
Whole device	
Voltage	100-120V or 220-230V switchable
Power Consuming	13W
Dimension	330*200*55 mm

Note: Data listed above are collected from Audio Precision AP2722 testing.

Cautions

1. Do not use your CMA800i in a hot or humid environment.
2. Unplug your CMA800i in lightning weather or during a long period without using.
3. Do not have your CMA800i covered by anything.
4. Only the specified or manufacturer-supplied power cord can be used for your CMA800i.
5. Clean your CMA800i with a piece of dry cloth or the special cleanser.
6. If your CMA800i fails to work, please contact your dealer or manufacturer.